PIN48

COST-EFFECTIVENESS OF A PENTAVALENT HUMAN-BOVINE REASSORTANT ROTAVIRUS VACCINE (RV5) IN JAPAN

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OBJECTIVES: This study assesses the cost-effectiveness of universal vaccination with RV5 in a hypothetical cohort of 1,091,156 children in Japan during their first 5 years of life. **METHODS:** A Markov model was developed to evaluate the cost per quality-adjusted-life-year (QALY) from the healthcare and societal perspectives. The base case scenario assumes 94% of the vaccinated cohort received 3 doses of RV5 orally at 2, 4, and 6 months of age with the remaining children receiving only 1 or 2 doses. In the absence of a vaccination strategy, there is annually 1 death, 78,000 hospitalizations, and 739,874 outpatient visits. The efficacy of RV5 was based on the results of the Rotavirus Efficacy and Safety Trial (REST). The three dose efficacy in REST was similar to the one obtained from clinical trials conducted in Japan. **RESULTS:** Universal vaccination could reduce hospitalizations by 89% and all symptomatic episodes of rotavirus gastroenteritis by 59%. For the base case scenario, at a cost of JPY 5316 per dose and administration fee of JPY ,100 per dose, the cost per case avoided was JPY 22,704 and the cost per QALY saved was JPY 2,230,978 from the healthcare payer perspective. From the societal perspective, the cost per case avoided was JPY 8,934 and the cost per QALY saved was JPY 877,855. **CONCLUSIONS:** Using three times the GDP per capita as a threshold, universal vaccination with RV5 is likely to be cost-effective and to result in substantial reductions in rotavirus-related healthcare use in Japan.

PIN49

COST-EFFEECTIVENESS OF EARLIER INITIATION OF FIRST LINE COMBINATION ANTIRETROVIRAL THERAPY IN AN URBAN OUTPATIENT HIV CLINIC IN UGANDA

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OBJECTIVES: According to national guidelines, HIV-positive patients in Uganda are to be initiated on combination antiretroviral therapy (cART) at a CD4+ T-cell (CD4) count below 250 cells/μl. However, cART initiation at higher CD4 counts increases survival, albeit at higher lifetime treatment cost. This analysis evaluates the cost-effectiveness of initiating cART at CD4 counts between 250 – 349 cells/μl vs. current guidelines. **METHODS:** The average CD4 decline in untreated patients with CD4 counts below 550 cells/μl occurs at a rate of 96.6 cells/μl annually. Life expectancy of cART-treated patients, conditional on baseline CD4 count, is modeled based on published literature. First line cART costs US$192 annually, with an additional US$113 per year for patient monitoring. Delay of cART until the CD4 count falls below 250 cells/μl incurs the cost of the bi-annual CD4 test and cost of routine maintenance care at US$85 annually. The analysis compares lifetime treatment costs and disability adjusted life-expectancy between early vs. delayed cART for ten baseline CD4 count ranges from 250-259 to 340-349 cells/μl. All costs and benefits are discounted at 3% annually. **RESULTS:** Treatment delay varies from 0.5 year (CD4: 250-299) – 1 year (CD4: 300-349). Early cART initiation increases life expectancy between 1.48 and 3.01 years and averts 1.31 – 2.67 disability adjusted life years (DALY's) per patient. Lifetime treatment costs are US$4255 – US$5210 for early initiation and US$3755 – US$4307 for delayed initiation. The cost/DALY averted of the early versus delayed start ranges from US$354 – US$362. **CONCLUSIONS:** In HIV-positive patients presenting with CD4 counts between 250-350 cells/μl, immediate initiation of cART is a highly cost-effective strategy using the recommended 1 time per capita GDP threshold of $460 reported for Uganda. Expanding the number of treatment slots to include patients with higher CD4 counts would constitute an efficient use of scarce health care dollars.

PIN50

THE CLINICAL EFFICACY AND COST-EFFECTIVENESS OF BOCEPREVIR IN COMBINATION WITH PEGYLATED INTERFERON- ALFA AND RIBAVIRIN FOR THE TREATMENT OF GENOTYPE 1 CHRONIC HEPATITIS C PATIENTS: A WITHIN TRIAL ANALYSIS FROM THE PERSPECTIVE OF THE SCOTTISH NATIONAL HEALTH SERVICE (NHS)

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OBJECTIVES: Chronic infection with the hepatitis C virus (HCV), if not cleared, can cause severe liver damage and eventual death. Despite treatment with current standard of care (pegylated interferon-alfa and ribavirin (PR)), sustained virologic response (SVR) is achieved in less than half of genotype 1 HCV patients. This analysis evaluated the cost-effectiveness of boceprevir in combination with PR in treatment-naïve and previously treated genotype 1 HCV patients, based on results of the phase III clinical trials, and from the perspective of NHS Scotland. **METHODS:** A Markov model was created to simulate the three treatment strategies studied in the boceprevir phase III trials: boceprevir response guided therapy (RGT), where a shortened treatment duration was possible for early responders; a full duration boceprevir arm (4 weeks PR plus 44 weeks triple therapy); and a 48 week PR standard of care arm. Each treatment regimen including boceprevir was compared to the PR standard of care arm. The incremental cost-effectiveness ratio (ICER) was measured in terms of cost per quality adjusted life year. The efficacy values applied were taken from the boceprevir clinical trials. In treatment naïve patients, 63% and 66% patients achieved SVR in the boceprevir RGT and full duration arms respectively, compared to 38% in the control arm. In previously treated patients, 59% and 67% patients achieved SVR in the boceprevir RGT and full duration arms respectively, compared to 21% who received PR alone. **RESULTS:** The ICER over current standard of care lies between £6,462 and £13,299 for treatment naïve patients and between £5,248 and £6,684 for treatment experienced patients, depending on treatment duration. **CONCLUSIONS:** The addition of boceprevir to current standard of care for HCV genotype 1 patients is clinically efficacious and cost-effective, and comfortably below a threshold of £20,000 per QALY, irrespective of whether patients have been previously treated.

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A COST-EFFECTIVENESS ANALYSIS OF LINEZOLID VERSUS VANCOMYCIN FOR VENTILATOR-ASSOCIATED PNEUMONIA PATIENTS IN PANAMA

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OBJECTIVES: Ventilator-associated pneumonia (VAP) is the most common nosocomial infection in the intensive care unit (ICU). It's associated with significant morbidity, increasing the ICU and hospital length of stay (LOS), and raising overall costs. Panama's statistics are similar to those reported in developed countries. Literature suggests that costs could be reduced using the most efficient empiric therapy. The aim of this study was to assess the cost-effectiveness (CE) of linezolid against generic vancomycin as an empiric therapy for VAP patients, from the health care payer's perspective. **METHODS:** A decision-tree model was used to compare costs and effectiveness of linezolid (600mg/12 hours) and vancomycin (1g/12 hours) (comparator) for a cohort of patients with VAP. Effectiveness measures were: clinical and microbiological success rates, mortality rates, ICU LOS and overall costs. Effectiveness and epidemiologic data were collected from published literature. Local costs (2011 US$) were obtained from Panama's Social Security official databases. The model used a 12-week time horizon and only direct medical costs were considered (hospital LOS, medication costs, hematologic, gastrointestinal and skin adverse events and lab exams). Monte Carlo probabilistic sensitivity analysis (PSA) was constructed. **RESULTS:** Results showed linezolid as more effective and less expensive option for VAP. Clinical success rate was higher with linezolid (64%) against vancomicyn, (59.5%). Mortality was lower with linezolid (10.13% vs. 15.74%). Average ICU LOSs was 17.4 days with linezolid and 21.26 days with vancomycin. Overall medical costs per patient were $19,507 with linezolid and $20,411 with vancomycin. CE analyses showed linezolid is the dominant strategy. Acceptability curves showed that linezolid would be cost-effective within <3 GDP per capita threshold. PSA outcomes support the robustness of these findings. **CONCLUSIONS:** This is the first CE study for VAP developed in Panamá. Linezolid resulted as the cost-saving option for treating VAP patients in the Panamanian clinical environment.

PIN52

COST-EFFECTIVENESS OF RIFAMPICIN-BASED CONTINUATION PHASE OF TUBERCULOSIS TREATMENT IN UGANDA

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OBJECTIVES: Approximately 40,000 new TB cases are treated annually in Uganda, and 4,000 are reported to require re-treatment (category II treatment). Current tuberculosis (TB) treatment in Uganda is standard 4 drug therapy in intensive phase (2 months), followed by isoniazid and ethambutol for 6 months (6HE). However, the World Heath Organization recommends isoniazid and rifampicin for 4 months (4HR) in the continuation phase, which is associated with better efficacy. We sought to investigate the cost-effectiveness of 4HR vs. 6HE. **METHODS:** Randomized clinical trial evidence indicates a significant decrease in the rate of treatment failure and relapse associated with 6HE versus 4HR from 10.0% to 5.0%. The median international daily drug price is HR: US$0.115 and HE: US$0.069. When the initial regimen is not successful, re-treatment is associated with a mortality rate of up to 23% and involves an additional 8 month drug-regimen at a cost of US$39.25. A decision tree was used to calculate the expected total cost of TB treatment in the 4HR versus 6HE arm. **RESULTS:** The cost of TB treatment in the continuation phase is 4HR: US$13.82 and 6HE: US$12.46. However, once the cost of re-treatment is factored in, the average weighted treatment cost is 4HR: US$15.79 and 6HE: US$16.38. Replacing 6HE with 4HR nationally could decrease the annual cost of TB treatment by an estimated US$23,500 and prevent about 2,000 TB treatment failures and relapses per year. **CONCLUSIONS:** Combination therapy with 4HR in the continuation phase dominates 6HE, as it is associated with improved effectiveness and a lower average cost per patient. Since treatment failure or relapse is associated with worsened clinical outcomes in resource constrained settings, considerable gains to population health could be achieved at lower cost if 4HR became the new standard of care in the continuation phase of TB treatment in Uganda.

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COST-EFFECTIVENESS ANALYSIS OF PEGYLATED INTERFERON ALPHA-2A VERSUS PEGYLATED INTERFERON ALPHA-2B IN THE TREATMENT OF CHRONIC HEPATITIS C PATIENTS IN POLAND

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OBJECTIVES: To assess cost-effectiveness of pegylated interferon alpha-2a (PegIFNα2a) vs. pegylated interferon alpha-2b (PegIFNα2b) in the treatment of chronic hepatitis C (HCV) patients from Polish public payer perspective. **METHODS:** Systematic review assessed clinical efficacy and safety of the two treatment op-